AU/ACSC/058/1999-04

AIR COMMAND AND STAFF COLLEGE

AIR UNIVERSITY

DYNAMIC TARGETING

ARE WE READY?

by

Kevin L. Fox, Major, USAF

A Research Report Submitted to the Faculty

In Partial Fulfillment of the Graduation Requirements

Advisor: Major John Cote

Maxwell Air Force Base, Alabama

April 1999

Disclaimer

The views expressed in this academic research paper are those of the author(s) and do not reflect the official policy or position of the US government or the Department of Defense. In accordance with Air Force Instruction 51-303, it is not copyrighted, but is the property of the United States government.

Contents

Page

Illustrations

Page

Preface

I chose this particular topic due to my background as a tactics officer with the E-8C Joint Surveillance Target Attack Radar System (JSTARS) and my interest in developing better procedures to attack moving targets. While with JSTARS, my office worked with many different attack units to begin working a concept of operations (CONOPS) for attacking moving targets and supporting "halt phase" operations. All of this work and the work of many others have laid the foundation for training opportunities, but we now need command and joint service Interest to make it happen.

Specifically, I would like to thank some of the other tactics guys in the field working this difficult issue. My thanks to Brig Gen Ben Robinson, LT COL Perry "Wizard" Wiggins, USA, Maj Joe "Bag" Rossacci, USAF, Maj Ed "Tank" McKinzie, USAF, Capt Jeff "Buffalo" Herd, USAF, Capt Greg "Sleepy" Bradford, USAF, and Capt Robert "Dagwood" Umstead, USAF. Each of these guys also recognized the need to begin developing better procedures for attacking dynamic targets. Lastly, I would like to thank Lt Col Price T. Bingham, USAF, Retired, who has written many articles on targeting moving forces, which I used throughout my concept development. Of course, none of this would have been possible without my research advisor, Maj John "Gomez" Cote, USAF, who always supported my different ideas and opinions.

AU/ACSC/058/1999-04

Abstract

Historically, proponents of airpower have continually pushed their ideas and concepts to ensure airpower is employed effectively, efficiently, and most importantly, with devastating effect. However, the main problem associated with any doctrine or concept, is remaining in the dogma loop of slow change.

With airpower's global impact and rapid dominance of the battlespace, planners and aircrews must begin to develop new and better ways to employ airpower into the 21st century. One method, is the utilization of airpower to dynamically target those threatening forces in the battlespace, before they impact friendly operations. To accomplish this mission, airpower practitioners must look at dynamic targeting, or specifically prosecuting those time critical threats. This mission will be a cornerstone to the joint vision of dominant maneuver throughout the battlespace by having the ability to "halt" enemy activities before they become a factor.

This paper will analyze dynamic targeting, specifically prosecuting time critical targets (TCT). The fundamental thesis is that the services and airpower planners must do more to effectively prepare for this new and dynamic mission. This will include incorporating dynamic targeting into the JFACCs initial air plan and reviewing concepts of employment on XINT, or on-call airborne interdiction. To meet this dynamic mission, aircrews will also need to receive mission type orders at the tactical level of employment,

so they can better shape and define the theater battlespace in real-time. However, the true key to successful employment will lie in the training and exercises utilized to prepare our forces in dynamic targeting, or the new term of “halt phase” operations.

Lastly, this article is designed more for awareness into dynamic targeting considerations and employment, but it will also make recommendations and considerations for future targeting employment. Overall, the main theme of this paper is dynamically targeting those time critical threats, specifically moving enemy forces throughout the battlespace.

Chapter 1

Introduction

> *Consequently, when a great captain does arise, irrespective of the circumstances which surround his successes, his system, even if he has no system, is turned into an infallible doctrine, a dogma which becomes a millstone.*
>
> —J.F.C. Fuller.

Some would say we must strive to learn from past experiences, while still searching for new and better ways to do business. Others may call it "thinking out of the box", but it's really nothing more than constant improvement. Due to technological developments over the last century, forces now have the ability to fight differently, than 50, 20, even 10 years ago. This should support the Revolution in Military Affairs (RMA) concept, which requires new warfighting concepts and new force structures to capitalize on rapidly improving technologies and the ever-changing threat.[1]

In today's dynamic and changing battlespace, Joint Force Commander's (JFCs) will face the issue of dynamically targeting time critical threats. JFCs will require common joint dynamic targeting procedures to deconflict targeting operations, prevent duplication of effort, reduce potential for fratricide and target the threat in a timely manner to affect operations. This paper will address the current doctrine of targeting, specifically dynamic targeting, planning and targeting considerations, command and control (C2) employment considerations, the need for dynamic targeting, then recommendations for future employment.

Thesis

Although the services have joint doctrine on targeting, there may not be enough delineated procedures for dynamic targeting, or sufficient training to prosecute the threat effectively. Normally, the services view targeting as interdiction of fixed targets, or planned targets. However, today's ever-increasing unknown threat, may not present itself until the last minute, which will require immediate targeting (dynamic) to be successful. Also, the training required to prosecute dynamic targets exist in a very limited form, especially when the operations are interdiction versus close air support (CAS). The combat air forces (CAF) must make dynamic targeting a part of the JFC and Joint Force Air Component Commanders (JFACCs) plan. This includes, reviewing concepts of dynamic targeting employment and incorporating the role of XINT (on-call interdiction) into operational plans. Other options include the utilization of mission-type orders at the tactical level of employment, decentralizing the dynamic targeting process and developing tactics to utilize the bomber and fighter/bomber force in dynamic targeting. To succeed, dynamic targeting must be incorporated into daily training and exercises.

What is Dynamic Targeting?

For the purpose of this article, dynamic targeting will be used synonymously with Time Critical Targets (TCTs), specifically surface TCTs. Therefore, dynamic targeting is the unplanned prosecution of a target that is lucrative, fleeting or of a high priority to friendly forces (i.e. Weapons of Mass Destruction, Mobile Surface-to-Air Missiles, Command Vehicles, etc.).[2] Other than CAS assets, most air assets plan to attack the target a day, even weeks in advance via in-depth target area study. However, this becomes difficult when the target and its location are unknown until the last minute, so forces must be able to adapt to this fluid environment. The priority of countering any dynamic target is to prevent employment or, if unable, to minimize its

impact to a theater. Lastly, this issue is even more important when forces employ as part of an Air Expeditionary Force (AEF) or project power ashore from sea-based units. In these scenarios, planned targets may be rapidly aborted to stop dynamic targets of interest which could affect theater battle plans. Also, dynamic targeting allows airpower to employ an effects based targeting, where mass has been redefined in the battlespace through using airpower to delay, disrupt or destroy enemy forces before they become established into threatening positions. This will alleviate much of the need to place friendly forces in threatening situations, and may save numerous ground forces lives by reducing their exposure to force-on-force large battles. Instead, airpower will create a complementing function with ground forces, who can then "mop-up" the remaining" threats in the battlespace.

Why Dynamic Targeting?

With the proliferation of weapons throughout the world, the growing threat is the unknown threat. Except for one or two theaters of operation, the future threat may be the small movement of forces to a border of dispute, Weapons of Mass Destruction (WMD) forces moving to fire weapons, terrorist movements, or Mobile Surface to Air Missiles (SAMs) moving in position to threaten our air forces. These types of targets are not stationary in nature, but dynamic and continuously moving throughout an area of operation. Targeting these surface forces on the move can be compared to the counterair advantages of targeting enemy airpower inflight, rather than at air bases. Therefore, forces must be prepared to target on a moment's notice, with devastating effect. Although this sounds easy, it becomes very difficult to actually perform or orchestrate for planners, unless planners and aircrews are prepared for this dynamic mission. However, to gain a better understanding of targeting operations and employment, doctrine must be viewed to determine where the road starts.

Doctrine

Joint Vision 2010 (JV2010) illustrates how we must be prepared to respond to dynamic changes concerning potential adversaries of the future. Specifically, JV2010 states that commanders can now achieve the necessary destruction or suppression of enemy forces with fewer systems, thereby reducing the risk of massing people and equipment to counter an adversary.[3] Also, dynamic targeting will support JV2010's cornerstones of Full-Dimensional Protection, Dominant Maneuver and Precision Engagement.

Joint Pub 3-0, *Doctrine for Joint Operations*, defines targeting as the process of selecting targets and matching the appropriate response through assigning priorities.[4] Dynamic targeting must be a core foundation to the JFC's targeting plan and the JFACC's allocation of resources to meet this critical mission.

Joint Pub 3-03, *Conducting Joint Interdiction Operations*, list the goal of interdiction as, diverting, disrupting, delaying or destroying enemy forces.[5] However, little information describes the process of dynamically targeting enemy forces. To gain an understanding of the underlying implications, the definitions must be analyzed. The concept of diverting enemy forces states, "interdiction can divert enemy forces away from areas where the enemy has immediate or critical requirements for them, or divert enemy forces to a location more favorable to friendly forces".[6] To support delaying enemy forces, "interdiction can delay enemy forces on such occasions when they are forced to halt their advance behind a damaged route segment or are forced to make lengthy detours".[7] Again, this definition implies the attack of fixed target areas versus the consideration for destroying those forces in the field, or before they become a factor to the theater battlespace. However, in fairness to JP 3-03, it also states it is advantageous for friendly forces to pressure their opponent to attempt time-urgent movement, which maximizes their exposure to interdiction.[8] Lastly, JP 3-03 identifies the destruction of transportation

systems as a means, not and end in itself.[9] This concept of diverting, delaying or destroying the enemy's dynamic targets is not an end, but it can affect the present and future theater battlespace. Therefore, our forces must be prepared to utilize the underlying concept of interdiction by applying these interdiction objectives to dynamic targeting.

AFDD 1, *Air Force Basic Doctrine*, focuses on the Air Force core competencies of Air/Space Superiority, Precision Engagement, Information Superiority, Global Attack, Rapid Global Mobility and Agile Combat Support.[10] Within the dynamic targeting arena, planners should focus on Air/Space Superiority, Precision Engagement, Information Superiority and Global Attack to prosecute dynamic targets. The key components of Air/Space Superiority are the freedom to attack and from attack, which enables the forces a flexibility of parallel warfare across the theater.[11] Whereas, Precision Engagement allows our forces to apply force discriminately against specific targets of interest.[12] With the advent of new precision weapons such as Joint Direct Attack Munitions (JDAM), Joint Standoff Weapon (JSOW) and Wind Corrected Munitions Dispenser (WCMD), our forces can target specific dynamic targets threatening the battlespace. However, to find and identify these dynamic targets, the role of Information Superiority must be exploited to the fullest potential. The key role is in the accurate and usable information provided, while not overwhelming the user. Advanced technology systems such as the Airborne Warning and Control System (AWACS), Joint Surveillance Targeting Attack Radar System (JSTARS), RC-135 Rivet Joint and Unmanned Aerial Vehicles (UAVs) are a key to ensuring our forces know the enemy's intentions and location, real-time. Lastly, the role of Global Attack enables our forces to rapidly project power over global distances, while maintaining this presence over a potential adversary.[13]

AFDD 2, *Organization and Employment of Aerospace Power*, list examples of war winning situations and one example is Halt operations. This may be the conflict's decisive phase, not the precursor to a build-up of forces. Halt operations are achieved through the combination of destruction, disruption, diversion and deception against the enemy's offensive ability to employ forces.[14] Today's modern military airpower technology allows forces the ability to employ attacks to rapidly halt major enemy advances, well short of their objectives.[15] The point of "decisive halt" is to force the enemy beyond their culminating point through the early and sustained overwhelming application of air and space power.[16] Decisive Halt can help shape the international environment by preventing the emergence or growth of conflicts, respond to conflicts to deter, resolve, contain or engage forces. The key is planning for the unknown (dynamic) and effective training to prosecute this threat, before it becomes a factor.

Historical Precedence

Historically, we can look at dynamic targeting from World War I to the present day by exploring the destruction of trains, troops, armor and even structures. Each of these examples demonstrates the effect airpower can have on ground force movement, both enemy and friendly. Throughout history movement has been crucial to warfare, as evidenced in a number of great victories characterized by the use of movement to create and then exploit the advantages of surprise, concentration and position.[17] Also, with advent of the motor vehicle, technology enhanced movement, creating an immense impact on military doctrine, organization and training.[18] Targeting TCTs or dynamic targeting falls under the auspice of interdiction. When observing the use of interdiction, the terms used up to Korea were "tactical" or "strategic" operations.[19] One bombardment manual of the 1920s, defined tactical missions as "those whose successful execution is intended to have an immediate effect on the outcome of the operation of

ground forces".[20] Examples are evident in World War II, where tactical interdiction was used to target railroads and the roads between Rome and stalled forces on the Gustav line during Operation SHINGLE.[21] Also, Korea provided examples such as a Fifth Air Force plan to catch elusive motor vehicles by day, by defining a zone of interdiction that extended fifty miles back from the front (later became Battlefield Air Interdiction).[22] Another example, is the COMMANDO HUNT I, III, V, and VII plans used in Vietnam to interdict supply routes during the dry seasons by dynamically targeting convoys and troops on the move.[23] Lastly, DESERT STORM provided examples such as, the Battle of Al Khafji, where coalition airpower successfully halted the enemy's advance and marshalling of forces.[24] Although Khafji was the only significant Iraqi offensive, it clearly demonstrates the need for today's airmen to be able to rapidly adapt to a changing situation and dynamically target those forces. Dynamic targeting will affect not only the ground battle, but the theater battle as well, by targeting those threats that may influence present and future battles by targeting those critical threats.

AEF Employment--The Ultimate Target Set

Due to reduced force structures, airpower is seeing another evolution in the development of rapidly deployable Air Expeditionary Forces (AEF) to deploy direct to employment in a theater of operation, all without prior knowledge of many time critical targets. This small, but lethal force package is reliant on many factors, the main one being accurate and timely intelligence on the enemy forces. Although, this may support the targeting of "known" targets, it does very little to support the fluid dynamics of the battlespace. Planners, battle managers and aircrews must be able to accurately and efficiently respond to the changing dynamics of the battlespace in real-time. This will require aircrew's to target previously unknown or unplanned targets that meet the JFCs priority list, or may have a real-time influence on the operation. Another term for this type

of targeting, would be dynamic targeting. Therefore, aircrews and planners must plan ordnance loads, fuel and their package operations around the unknown, or potential operation. What would the package commander or battle manager do if they identify WMD moving towards fire positions, forces moving from garrison locations to the frontline, or mobile SAMs moving to target attacking forces? This is where the need to "plan" and "practice" dynamic targeting really becomes paramount. One key factor in successful planning, involves the various commanders effectively utilizing those Intelligence, Surveillance and Reconnaissance (ISR) assets to provide accurate and timely information on time critical threats. Deployment to employment missions requires plans, procedures and operations to support dynamic targeting.

After discussing the need for dynamic targeting, current doctrine, historical precedence, and AEF employment, aircrews and planners will need to review planning and targeting considerations to effectively prepare for this dynamic mission.

Notes

[1] The National Defense Panel, "Assessment of the May 1997 Quadrennial Defense Review", memo to the Secretary of Defense dated 15 May 1997, printed in Inside the Army, May 19, 1997, p. 25.

[2] Air Land Sea Application Center (ALSA), AFJPAM 10-225, *Targeting*, 1997, p. II-1.

[3] Joint Chiefs of Staff (JCS), *Joint Vision 2010*, 1998, p. 9.

[4] Joint Publication 3-0, *Doctrine for Joint Operations*, 1995, p. III-21

[5] Joint Publication, 3-03, *Joint Interdiction Operations*, 1995, p. v

[6] Ibid, p. I-2

[7] Ibid, p. I-3 – I-4

[8] Ibid, p. I-4

[9] Ibid, p. I-4

[10] AFDD 1, *Air Force Basic Doctrine,* 1997, p. 27

[11] Ibid, p. 29

[12] Ibid, p. 30

[13] Ibid, p. 32

[14] AFDD 2, *Organization and Employment of Aerospace Power,* 1998, p. 21

[15] Ibid, p. 21

[16] AFDD 1, p. 43

[17] Bingham, Price T., *Theater Warfare, Movement, and Airpower*, Airpower Journal, Spring 1998, p. 2

Notes

[18] Ibid, p. 2

[19] Eduard, Mark, *Aerial Interdiction in Three Wars*, Washington D.C., Center for Air Force History, 1994, p. 9

[20] 1st Lt C. Mck. Robinson, Air Service Tactical School, "Bombardment", 1924-1925, Air Force Historical Agency, Maxwell Air Force Base, Al

[21] Eduard, p. 119

[22] Ibid, p. 300

[23] Ibid, p. 327

[24] Department of Defense, *Conduct of the Persian Gulf War: Final Report to Congress,* April 1992, p. 130-133, 510-12

Chapter 2

Planning and Targeting

Human factor makes war unpredictable.

—Clausewitz.

In most theater's of operation, a Joint Force Commander (JFC) is given daily intelligence and mission briefs, which will influence the targets for the next day's of the battle. Dynamic targets can be any target established as a result of JFC guidance, which is then used by the Joint Force Air Component Commander (JFACC) as guidance on targets. Once the target is set, "trained" Air Operations Center (AOC) personnel can determine if the new "pop-up" targets meet the established JFCs target priorities and criteria, then designate the new targets as a dynamic target (TCT).

However, dynamic targets must be better defined to gain insight into the dynamic targeting dilemma. The Air Land Sea Application Center (ALSA) publication, *The Joint Targeting Process and Procedures for Targeting Time-Critical Targets*, defines a TCT(dynamic target) as "a lucrative, fleeting, air, land or sea target of such high priority to friendly forces that the JFC/component commander designates it as requiring immediate response. Dynamic targets (TCTs) will, or will pose, an imminent threat to friendly forces or present an exceptional operational or tactical opportunity."[1] Other terms commonly associated with dynamic targets include, emerging, perishable, high payoff, or time-sensitive.[2] This chapter will focus on dynamic targets, specifically "surface TCTs", or land and sea targets.

Examples of Dynamic Targets

Examples of dynamic targets include mobile rocket launchers (MRLs), mobile high threat surface-to-air missiles (SAMs), theater ballistic missiles (TBMs), supporting launchers, mobile weapons of mass destruction (WMD), or mobile command and control vehicles and facilities.[3] TCTs may also be C2 centers, enemy command post, nuclear or chemical weapons storage sites, or surface-to-surface missile sites.[4] Dynamic targets will also be those moving land forces that may affect the battlespace or threaten friendly forces. Currently, the ALSA pamphlet on Targeting classifies dynamic targets (TCTs) as either planned or immediate.[5]

Planned dynamic targets are normally fixed targets that could have been upgraded to time-critical status due to the JFCs priority and will require immediate attack to seize the tactical opportunity.[6] Immediate dynamic targets are normally mobile TCTs against which fire or attacks have not been scheduled.[7] (Fig 1)

Another type of dynamic target is a Target of Opportunity (TOO). TOOs are those targets visible from surface, air or space assets within range of friendly weapons, who have not been scheduled or requested for attack.[8] This type of target will fall into the same categories of unplanned and unanticipated, but presents a small window of opportunity for attack. Normally, the biggest difference between a TCT and TOO is the JFCs priorities and revisit time of the surveillance assets. (Fig 1)

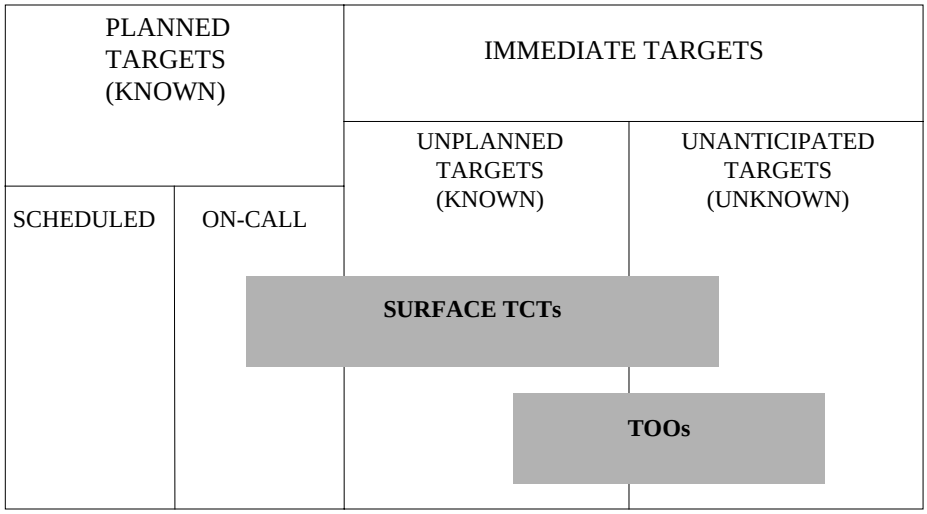

Figure 1. Surface TCT and TOO Relationship to Immediate/Planned Targets

Planning

The basic concept of rapidly targeting enemy forces will require the JFC/JFACC to establish the priority of targeting based upon the threat. Then the JFACC must consider the number and concentration of forces, proximity to friendly forces, risk of civilian or collateral damage, speed of TCTs, enemy air defenses, trafficability, weather, and our attack force capabilities. To clearly define the processes and considerations involved, the theater must have detailed planning to support dynamic targeting attack.

The JFC will delegate planning for air operations to the JFACC, who is responsible for planning, tasking and executing offensive and defensive operations against dynamic targets.[9] Dynamic targets will arise from the JFCs mission, objectives, priorities and the dynamics of the battlespace. Dynamic targets may be any target designated by the JFC, then Air Operations

Center (AOC) personnel can then determine if pop-up targets meet the JFCs established criteria and designate the new target as a dynamic target.

The key ingredient to the targeting process lies in the effective planning for prosecution of dynamic targets. To effectively allocate forces and set priorities for targeting, the JFC must have accurate and timely intelligence of the battlespace. Intelligence Preparation of the Battlespace (IPB) is the critical phase in planning attack operations since it will reduce many of the uncertainties about the enemy and the environment. IPB will help narrow the JFACCs focus on locating dynamic targets and help evaluate the enemy's capabilities and vulnerabilities.[10] This will provide commanders a detailed analysis of all operational and intelligence information, to include enemy situation, capabilities, strengths, composition, disposition, and locations.[11] It will also estimate possible enemy courses of action, vulnerabilities and their sustainment capabilities.[12]

Procedures

To effectively execute attacks against dynamic targets, the JFC and component commanders must have clearly defined procedures for control, coordination, fire support coordination line (FSCL) operations, airspace coordination and set weapons system procedures.

Control and coordination measures are set by the JFC to ensure the use of boundaries, fire support coordination measures (FSCMs), and airspace control measures (ACMs).[13] The boundaries (lateral, forward, and rear) define surface areas for deconfliction and coordination of operations.[14] Typically, air sorties are not set by boundaries, but attack aircraft within a surface force's boundary will require coordination with the ground commander. Also, the boundaries may need adjustment based upon the battle environment. Although boundaries give the basic framework for coordination, FSCMs are used to attack targets, protect forces and prepare for

future operations.[15] FSCMs are identified by location, time effective and is the key to aiding dynamic targeting.[16] Normally, FSCMs are identified as either permissive, or restrictive. The permissive measures are used to rapidly coordinate and synchronize attacks between components and units. Permissive measures are free fire areas (FFAs), coordinated fire lines (CFLs), and the fire support coordination line (FSCL).[17] The restrictive measures are restrictive in nature and used to protect friendly forces beyond the FSCL.[18]

Attack Operations

After the planning effort sets the targeting priorities, performs effective IPB and sets boundaries and procedures for operations, the plan must delineate specific types of operations for surface and air forces.

These missions are normally initiated at the AOC and tasked via the air tasking order (ATO). Planning for immediate, perishable targets may include the tasking of airborne alert or hunter-killer type missions (airborne Forward Air Controllers and attack assets) scheduled over possible dynamic target operating areas identified in the IPB process.[19] This planning can also include pre-designated sorties for divert. The entire attack operations process of finding targets, tasking assets and attacking dynamic targets must occur in a very limited timeframe. Normally, these attack operations are better defined by the attack area of operation such as, short of the FSCL, between the FSCL and forward boundary, and areas without a FSCL.[20] Attacks short of the FSCL require coordination with the appropriate ground commander to prevent the high threat of fratricide. Coordination for attacks in this area will require deconfliction with the area commander, the designated command and control platforms (AWACS, JSTARS, ABCCC, ASOC/DASC), and normally require handoff to a FAC or TACP. To attack between the FSCL and forward boundary, the area commander still requires coordination to prevent duplication of

effort and prevent fratricide. Lastly, to attack without a FSCL, the component commanders must still have defined procedures for coordination and deconfliction to prevent duplication of effort and fratricide. Attacks without a FSCL and beyond the forward boundary, allows the quickest opportunity for dynamic targeting. Whereas, attacks inside the forward boundary of operations may limit rapid attacks against dynamic targets due to coordination and deconfliction of forces.[21]

The last part of the attack operation, involves planning for the types of attack operation to employ. To support prosecution of dynamic targets, current doctrine identifies the use of surface fires (ATACMS, MLRS, Artillery), rotary-wing aviation and fixed-wing aviation.[22] Attack aircraft can rapidly respond to targeting dynamic targets provided they are airborne and in communication with command and control assets to receive targeting information. Attack aircraft can support dynamic targeting via tasking as a surface TCT CAP, ground alert, or through the use of airborne divert.[23] Surface TCT CAP is the most responsive to dynamic targeting and should be placed near expected dynamic target engagement areas. Lastly, airborne divert can be used to divert attack aircraft enroute to planned targets to attack dynamic targets (TCTs). This is accomplished through the effective use of battle management platforms (AWACS, JSTARS, ABCCC, E-2) to divert the asset based on the dynamic target priority versus that of the planned target. Airborne divert is a valid option for dynamic targeting, but should only be used when no other option is available. Also, the use of airborne divert assets will require extensive deconfliction from other assets and coordination.

Although established procedures are available to support targeting, little precedence or defined procedures exist to aid the planner in support of prosecuting time critical targets. Planners must ensure the airspace measures and procedures for aircrews to utilize are part of the overall JFACC plan. Currently, the measures and procedures support either CAS or interdiction,

but does not clearly define procedures for dynamic targeting planning and employment. Planners and aircrews must ensure dynamic targeting is part of the JFACCs arsenal and daily operations, through development of tactics, techniques and procedures (TTP). If not, these dynamic targets will remain critical, due to lack of planning and established procedures.

This chapter has discussed the basic definitions and procedures in current doctrine supporting targeting, specifically time-critical targeting. However, these "basic" procedures have yet to be proven in combat, training or exercises. Therefore, planners and aircrews must continue to think of this elusive threat and methods to destroy those dynamic targets. One of the underlying implications, is the effective use of command and control (C2) in support of dynamic targeting. To effectively prosecute these dynamic threats, accurate and timely C2 will need to reach the "tip of the spear", or the actual attack assets.

Notes

[1] Air Land Sea Application Center (ALSA), AFJPAM 10-225, *Targeting*, 1997, p. II-1
[2] Joint Publication 1-02, *Department of Defense Dictionary of Military and Associated Terms*, 1989
[3] ALSA, p. II-6
[4] Ibid, p. viii
[5] Ibid, p. viii
[6] Ibid, p. II-1
[7] Ibid, p. II-1
[8] Ibid, p. II-2
[9] USCENTAF, *Theater Missile Defense (TMD) Concept of Operations (CONOPS)*, Internal Look 1996, p. 13.
[10] Ibid, p. 9
[11] Ibid, p. 9
[12] Ibid, p. 9
[13] ALSA, p. II-6 – II-8
[14] Ibid, p. II-6 – II-8
[15] Ibid, p. II-6 – II-8
[16] Ibid, p. II-6 – II-8
[17] Ibid, p. II-6 – II-8
[18] Ibid, p. II-6 – II-8
[19] USCENTAF, p. 13
[20] ALSA, p. II-10 – II-13

Notes

[21] Ibid, p. II-10 – II-13
[22] Ibid, p. II-4 – II-5
[23] Ibid, p. II-4 – II-5

Chapter 3

C2 and the Forces

Now in fire attacks one must respond to the changing situation.

— Sun Tzu

Command and Control (C2) of the forces and utilization of the assets is one of the most critical parts to dynamic targeting. C2 as defined in Joint Publication 1-02 is "the exercise of authority and direction by a properly designated commander over assigned forces in the accomplishment of the mission".[1] C2 is the process for the forces to execute the operational task to achieve the military objective. An example of this process is the *JFACC's Air Battle Planners Strategy-to-Task* model for choosing targets.[2] The tasks are finding targets, tasking assets, attacking/killing, then assess and report results.[3] Finding dynamic targets of interest poses one of the most difficult tasks in this targeting effort. The key role, is the characterization of the target, which becomes complicated, since no single sensor is capable of providing all the needed information. Commanders must use all the available Intelligence, Surveillance and Reconnaissance (ISR) assets to provide accurate and timely Intelligence Preparation of the Battlespace (IPB), although the potential exists for redundant and overlapping coverage to obtain accurate IPB. It may only take seconds to determine "something is there", but it could take hours for accurate target characterization. It becomes difficult to attack all "potential targets" in a multi-force operation. Therefore, targeting priorities and decentralized execution are a must to effectively prosecute this elusive threat. The next part involves the tasking of the assets.

The key to streamlining tasking, is effective communication throughout the components and component liaison's at the AOC. The key questions then becomes, is the AOC staff structured to support dynamic targeting? To effectively support tasking, the JFACC must have complete battlespace awareness and effective C2 execution.

The next process involves the actual attacking and killing of the dynamic target. This will require accurate target information and situational awareness of the target area. Information provided normally includes a target description, location, threats in the area and weather.[4] The key, is the ability of the sensors to locate and identify the target, the attack assets ability to find the target, and the ability of the attack asset to effectively destroy the target. Although this seems very basic in nature, it is one of the most difficult tasks to perform due to the training and experience of the attack and C2 assets to perform this role. An example of this difficulty can be found in the counter-SCUD efforts during the Gulf War. It's difficult to judge the effectiveness against countering the SCUD threat since the original objectives of the campaign were the destruction of ballistic missile production facilities and launch capabilities.[5] While it seems there was some success at this counter-SCUD strategy, the post-war inspections showed no "technical" evidence that a single SCUD Transporter Erector Launcher (TEL) was actually destroyed, despite claims of over 100 kills by aircrews.[6] Since the "planned" counter-SCUD operations were directed against fixed sites, no real thought was given to countering mobile launchers (dynamic targets), except to keep a few fighter-bombers on strip alert.[7] This proved critical in the short timeline of finding these dynamic targets, then proved difficult for the most advanced fighter-bomber (F-15E) to locate and destroy the mobile target at night.

Assuming the target is found, assets are tasked and the target is attacked, then the planners must assess and report the results to prevent duplication of effort by retargeting. To accomplish

this task, information must pass rapidly through sensors and C2 nodes to determine the "real" effect. The key part of the planning and prosecution of dynamic targets lies in the actual theater C2 network and their effectiveness.

To improve the JFACCs ability to prosecute dynamic targets, the entire Theater Air Ground System (TAGS) must be able to simultaneously respond to both air and ground dynamic targets.[8] TAGS is the functional architecture to support interoperable air/ground operations. The strength of the TAGS is to ensure superior connectivity between sensors, C2 nodes and shooters to provide accurate and timely information flow. Placing the appropriate level of battlespace awareness at subordinate C2 nodes can streamline the C2 cycle and allow timely engagement of dynamic targets. Some of the TAGS functions employed in the dynamic targeting process include the AOC, AWACS, JSTARS, ABCCC, ASOC/DASC, FAC, TACP, FSE, BCE, FSCC, and the GCE (Refer to Appendix A for TAGS descriptions).[9]

Managing the Battle

Managing the battle can be as difficult as the process of planning for, locating and identifying the dynamic target. Joint battle managers at all the participating C2 nodes will need awareness of the targeting priorities, attack assets available, threats in the area, tasking procedures and the support coordination process required. And example of this "battle management" is demonstrated in a scenario of prosecuting Mobile TMD targets.

In this scenario, AWACS, JSTARS, UAV's and space assets are providing surveillance and reconnaissance supporting theater operations. The Moving Target Indicator (MTI) on the JSTARS and U-2 detects a possible SCUD TEL moving into a firing position , then relays this information back to the AOC to maintain a common battlespace picture. With this information, the AOC directs UAVs redirected towards the target area to obtain target identification. After

the UAV passes over the target, it identifies a SCUD TEL and three support vehicles moving towards a suspected launch site. This information is processed at the AOC, then validated as a priority target needing immediate attack. The identification is then transmitted to each of the C2 nodes to ensure everyone is aware of a dynamic target being detected in the battlespace. Amplifying intelligence information is then received from the RC-135 Rivet Joint and Army sensors confirming this is a SCUD moving towards a suspected launch site. With this information, AOC planners begin the search for strip alert assets, TCT CAPs or divert assets. After searching the current assets available, the AOC recommends an interdiction F-15E be diverted to support this dynamic tasking. This information is passed to all the C2 nodes with the callsign and controlling agency. AWACS contacts the F-15E flight and diverts them on this dynamic targeting mission. The F-15Es receive this divert mission assignment, type target and coordinates over the radio and/or datalink. While the aircraft are being diverted, AWACS battle managers are coordinating with the JSTARS who initially detected the vehicles, to facilitate an initial handoff location for JSTARS battle managers to direct the F-15E towards the moving target. Prior to handoff of the fighters, AWACS coordinates with the airborne tankers to determine which ones will have extra fuel for the F-15E. After the F-15E refuels with an "unplanned" tanker, they are handed off to JSTARS controllers for final dynamic targeting information. Upon check-in with JSTARS, the F-15E's receive the target's location, heading, speed, geographic identifiers and threats in the area. Although JSTARS can obtain information on the TELs movement, it must coordinate with AWACS and RC-135's to determine if any airborne/ground threats are in the area and active. As the F-15E closes on the target, updated target and threat information is passed to the aircrew to orient them for attack and target acquisition. Upon acquisition via their on-board sensors, the F-15Es expend their cluster

munitions to destroy the TEL and the support vehicles, then report multiple explosions in the area back to JSTARS. JSTARS then passes this information over the C2 air net where the AOC, AWACS, ABCCC, RC-135 and other C2 nodes can receive the information for battlespace awareness (See Fig 2). Upon receiving the information, the AOC directs the JSTARS and U-2 to monitor the area for movement and a UAV to confirm the targets destruction. However, the factor in this scenario is the decentralized execution accomplished from those assets coordinating for the attack.

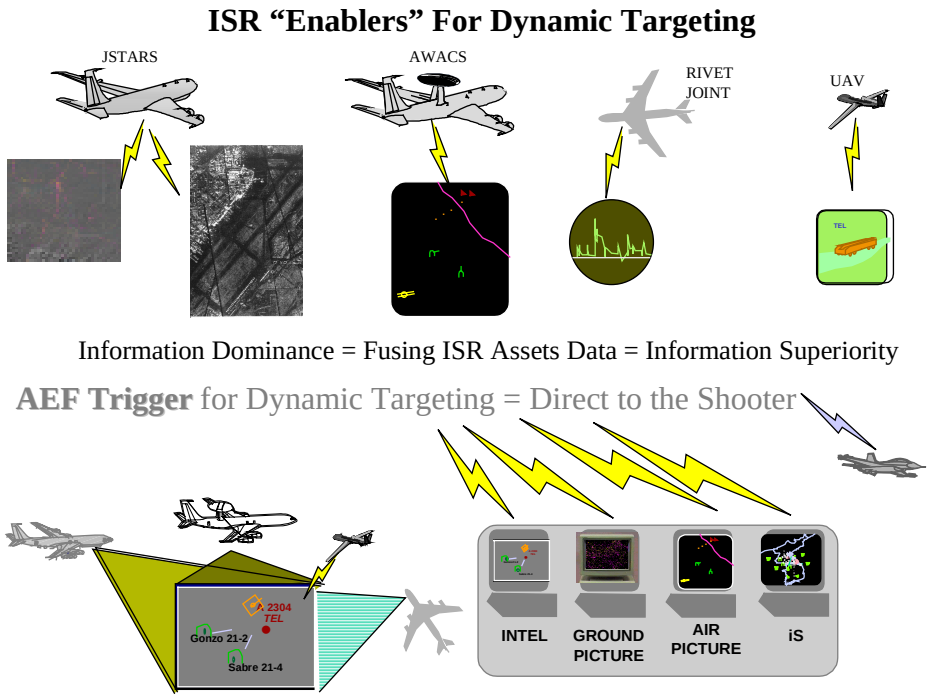

Figure 2. ISR "Enablers" for Dynamic Targeting

Centralized/Decentralized Control

Throughout the battlespace, the term of the controlling authority can be detrimental to the prosecution of dynamic targets. By definition, the AOC is the location for centralized planning and control of theater assets, yet this structure may not be able to meet the dynamic timelines imposed by dynamic targets.[10] Normally, the JFACC will issue mission-type orders to

subordinate organizations to accomplish the total mission objectives set by the JFC, without specifying how it is to be accomplished.[11] Although subordinate organizations are delegated this responsibility for planning and weapons allocation, the JFACC still retains centralized control of the assets, with decentralized force execution. This demonstrates an ability to accomplish a planned mission, but what process is in place to allow decentralized execution against dynamic targets? Currently, the JFACC will normally maintain centralized control and centralized execution authority at the AOC for dynamic target attacks.[12] This will require all forces to receive "approval" from the AOC before prosecuting a dynamic target, which may be perishable.

Normally, the AOC will retain centralized control and delegate engagement authority for dynamic targets through predesignated assets in the Air Tasking Order (ATO).[13] Currently, procedures call for the AOC to ensure planning functions pre-designate missions in the ATO which are most compatible (ordnance, fuel, mission priority, etc.) for diverting to pre-identified areas, such as kill boxes.[14] Within this planning process, the individual forces will designate a certain number of assets, as "divert".

To streamline this function for dynamic targeting, it must be accomplished in a decentralized manner, taking the JFC, JFACC and JFLCC priorities into account for dynamic targeting. Currently, no theater plans initially allocate forces for dynamic targeting, other than CAS assets or ground alert, until the threat is present. The key to this planning process involves not only an accurate IPB process, but also a realistic plan by the JFACC to have assets available for this dynamic targeting mission. An example of this process is evident in the Gulf War missions of SCUD hunting, or dynamic targeting of those SCUD TELs. These missions were almost non-existent until the Iraqi's successfully launched at least 88 SCUD missiles at Saudi Arabia and Israel.[15] After this, the JFACC began diverting forces from planned missions, then

scheduled missions to target this new dynamic threat. Throughout the war, the coalition planned 4,750 anti-SCUD sorties, including the change or addition of 533 sorties.[16] These missions included the planned targeting of production facilities and 24-hour patrols to attack pre-launch and post-launch sites. Although the success of these missions are debatable, would the outcome have changed if the plan already had assets designated for dynamic targeting and the forces had the ability to prosecute these targets of opportunity in real-time? Of course, the SCUDs were not a priority, until they proved themselves in combat, then it gathered the entire theater's attention. Although much of this chapter has demonstrated the "current" process of C2 planning and execution, it still leaves the question of "are we ready today for dynamic targeting"?

After looking at the command and control considerations needed to support dynamic targeting, the question is still out as to the need for dynamic targeting. Therefore, it then becomes time for the planners and aircrews to consider the assets to utilize, training and exercises to support preparing our air forces for this dynamic mission.

Notes

[1] Joint Publication 1-02, *Department of Defense Dictionary of Military and Associated Terms*, 1989

[2] Ibid, p. 8

[3] Ibid, p. 9

[4] Ibid, p. 15

[5] Kipphut, Mark, Lt Col, USAF, *Theater Missile Defense*, Airpower Journal, Winter 1996, p. 45

[6] Ibid, p. 47

[7] Ibid, p. 47

[8] ACC/DRAW, p. 17

[9] Air Land Sea Application Center (ALSA), ACCP 50-54, *The Theater Air-Ground System (TAGS)*, 1994

[10] ACC/DRAW, p. 11

[11] Joint Publication 1-02, *Department of Defense Dictionary of Military and Associated Terms*, 1989

[12] ACC/DRAW, p. 25-27

[13] Ibid, p. 25-27

[14] Ibid, p. 25-27

Notes

[15] Kipphut, p. 41
[16] Ibid, p. 41

Chapter 4

Why Dynamic Targeting

> *Force is a means of war. To impose our will on the enemy is its object. To render the enemy powerless is the true aim of war.*
>
> —Clausewitz

Why all this discussion about dynamic targeting? Dynamic targeting sets the stage for airpower employment into the 21st century. In today's decreasing budgets and dueling of doctrines between the services, the Air Force has the ability to drastically affect the theater battlespace, if employed correctly. In the aftermath of the Gulf War, USAF officials believed airpower could be used to slow, halt, and even defeat an enemy before allied ground troops could arrive on the scene.[1] In many of today's unknown scenario's, airpower could bring aggression to a decisive halt, where the enemy no longer has the capability to advance and their options are reduced. In the Defense Department's 1997 Quadrennial Defense Review (QDR) the Pentagon supported a vigorous "halt phase".[2] The final QDR stated that the US must be "able to rapidly defeat initial enemy advances short of their objectives".[3] Retired Maj Gen Charles D. Link, who was the USAF point man on the QDR, stated that "if one has the capacity to find, fix, and attrit enemy military capabilities from the air, then one owes it to the nation to develop and exploit that capability".[4] Therefore, the question is still unanswered about airpower's capability to decisively halt the enemy. Actually, this is nothing more than a new term to applied to airpower's effect on the theater battlespace. As mentioned earlier, history has demonstrated

airpower's role in dynamically targeting forces before they can threaten the battlespace. However, the question should not be whether airpower can decisively halt the enemy, but how effectively is airpower preparing for this mission?

Airpower has the capability to dramatically influence the theater battlespace, if given the proper training opportunities and correct employment of these scarce resources. This follows the effective employment of the tenets of airpower including flexibility, versatility, synergy, and priority.[5] Currently, there is very little emphasis on dynamically targeting forces or practicing decisive halt operations. These are operations involving airpower arriving in a theater and being ready to target forces developing into a threatening situation, or moving to threaten friendly forces. However, effective tasking, training and preparation through exercises can truly help increase airpower's devastating effects.

Current Assets, Training and Exercises

First of all, the type of assets to affect this mission must be planned for and allocated in theater battle plans, AEF scenarios and contingency operations. Assets employed to dynamically target forces must have the ability to deliver a wide range of munitions to disrupt or destroy armor, SAM sites, TBMs, and even personnel. Also, these assets must have some connectivity with Intelligence, Surveillance and Reconnaissance (ISR) units to help determine developing and changing battlespace threats. Some of the assets to consider, are the B-1B, B-2, B-52, AC-130, AH-64, AH-1, F/A-18, F-16, F-15E, A-10, F-14 and AV-8. While this list in not all inclusive, it represents assets who can carry varying loads of munitions and utilize many of their on-board sensors to help locate and identify dynamic targets of interest. Also, planners must begin to think of the employment considerations using new and developing technologies such as, Stealth, UCAV's, F-22's, and the Joint Strike Fighter, especially when used with weapons like JDAM,

JSOW, WCMD, BAT, SFW, and future multi-purpose munitions. In the future, further exploitation of stealth technology and GPS weapons will enable airpower to target threatening forces without risking loss of personnel.

However, airpower has another factor in the equation called the "enablers", or really the force multipliers. These assets are the ISR assets used to help locate, track and identify the dynamic targets of interest. Some of the ISR assets to consider in planning are the JSTARS, AWACS, Rivet Joint, ES-3, EP-3, U-2, E-2C, ARL, UAV, Space and even SOF. Each of these assets brings a great capability to the JFACC and airpower employment, yet it must also be used effectively to enhance the battlespace. Of course, all of these assets have the capability to support dynamic targeting, but they must train for this mission.

Training

Currently, air assets practice the mission of dynamic targeting on a limited to non-existent basis, with the exception of assets used in CAS. While dynamic targeting may involve CAS assets, its purpose is a theater-wide employment covering the entire battlespace. While interviewing aircrew from the B-1, B-2, B-52, F-15E, F/A-18, F-16 and AC-130's, very little training and requirements were accomplished in dynamic targeting, especially against dynamic moving forces.[6] Each of the assets listed above have practiced dynamic targeting of "movers", but no unit had any semi-annual or annual requirement for this mission. However, units such as the B-1, B-52 and F-15E have been working with JSTARS to develop new Tactics Techniques and Procedures (TTP) for this mission, but only on a limited basis. Any training accomplished was via unit interaction, not command direction. Another highlighted area of this mission's importance can be found at the USAF Weapons School, where B-1, B-52 and F-15E's units have incorporated a couple of dynamic targeting missions into their syllabus.[7] Also, the 4 FW (F-

15E's) demonstrated the mission's importance by setting a Wing goal to work with JSTARS to practice dynamic targeting.[8] Although JSTARS is just one asset to work this mission, very few ISR or attack assets get to work on dynamically targeting movers. Essentially, the units associated with the weapons systems listed above, train very little in dynamic targeting and some receive no training. While this begins to highlight the importance of dynamic targeting, or preparation for the "halt phase", it does very little to prepare our combat air forces (CAF) in exercises.

Exercises

Another factor in training, is the use of exercises to prepare aircrews for this mission. Currently, many of the US exercises such as, RED FLAG, GREEN FLAG, MAPLE FLAG, Navy Exercises, and even Marine Exercises, fail to incorporate dynamic targeting, especially against "movers". Each of these exercises are designed more for the composite force package of air-to-air, air-to-ground, SEAD, and ISR assets to support the destruction of fixed interdiction targets. However, some of the Navy and Marine exercises try to exercise this mission on a small scale, yet this may only be two or three percent of the total missions. Therefore, the question is still unanswered about preparation for dynamic targeting. Today, a small amount of the CAF is getting to practice this mission through exercises in Theater Missile Defense (TMD), yet others still focus mainly on fixed interdiction targets. Airpower planners must begin to incorporate this mission into every exercise, so forces are ready to decisively halt the threat.

The main problem, lies in the use of real-time movers during exercises. Although, the Army trains their units in force-on-force employment at the National Training Center (NTC) where they have a large amount of movers and airspace, which could provide adequate ground forces to train against moving targets. Of course, this exercise is mainly designed for Army battlefield

employment and CAS employment, yet it also represents one training opportunity for CAF assets to practice dynamic targeting and assess their capability to rapidly halt enemy forces. Other options could include using military or contractor personnel driving vehicles to simulate mobile SAMs, TBMs, or even small forces moving into firing position. Another factor, is training opportunities for CAF assets to dynamically target movers. Until major commands and joint forces can develop effective training scenario's, units will get very little to no training in dynamic targeting, or really preparing for decisive halt operations.

Scenario

To effectively gain an understanding of the training required and the importance of dynamic targeting, we must look to the next operation. Most likely, the next operation will involve a USAF Aerospace Expeditionary Force (AEF) launching airpower in response to a threatening situation. With today's AEF concept, airpower can decisively halt the enemy before ground forces arrive in theater. An example would be the use of heavy bombers, armed with new munitions to destroy hundreds of armored targets on a single pass, or stop an enemy column on the march. Listed below is an example scenario for the future (See Fig 3):

The USAF has two AEFs on alert to rapidly deploy to any theater and stop enemy aggression. Each of these AEFs have been based together, flown together, exercised together and planned for the "unknown" targets. The Joint Chiefs of Staff (JCS) directs an AEF to deploy to country X and halt enemy forces from reaching country Y's borders, while also gaining air superiority for potential follow-on force protection. Due to the dynamics of their targets, this AEF was given Mission-Type Orders (MTO) from the JFACC describing the planned shaping of the battlespace. This MTO is briefed and planned by all commanders and aircrew, so they can respond to the dynamic changes in the battlespace, while still shaping the battlespace as the JFC

directed. By allowing MTOs to reach the tactical level of employment, all forces will understand the desired outcome, so they can target the appropriate forces. In this planning process, commanders and aircrews allocated certain missions to be XINT, or an airborne on-call interdiction to respond to rapidly changing threats, or dynamic targets of interest such as mobile SAMs, TBMs, or untargeted enemy forces.[9] Within the planning and preparation phase, the AEF also works with the ISR assets to ensure they also know the MTOs and AEF battleplan. Due to limited numbers of ISR assets, they will fly from their own locations to act as the "enablers" for combat employment. These ISR assets will then develop a theater battle picture, or IPB to determine enemy actions and assign forces against those "unknown" dynamic targets (See Fig 3). With this basic information, the AEF deploys to a theater to employ directly against the threats, while planning and practicing for this mission of the "unknown".

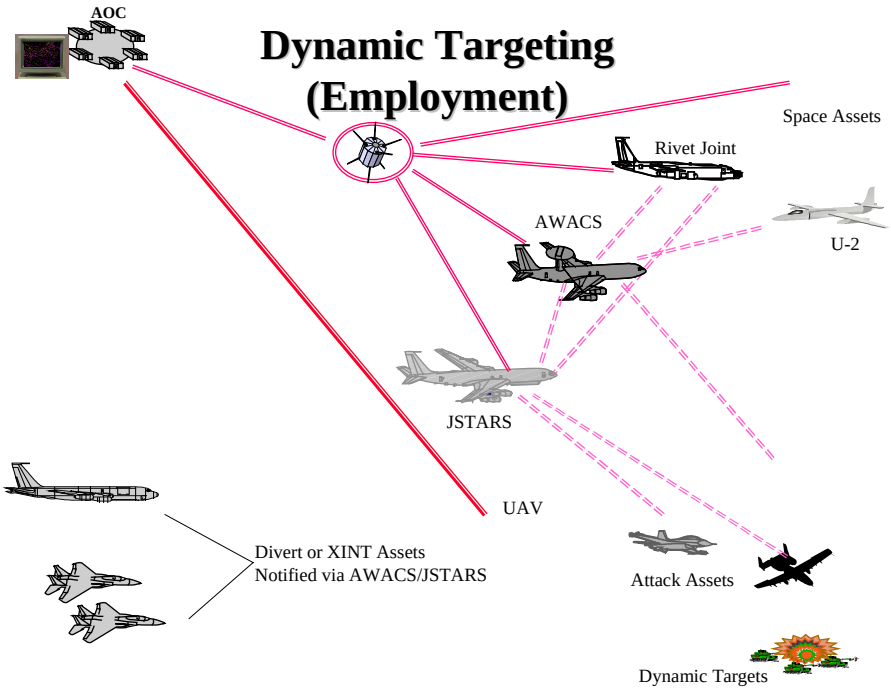

Figure 3. Basic Dynamic Targeting Coordination

Notes

[1] Air Force Association, Air Force Magazine, “Duel of Doctrines”, December 1998, p. 30
[2] Ibid, p. 31
[3] William S. Cohen, Report of the Quadrennial Defense Review, US Department of Defense, May 1997, “Fighting and Winning Major Theater Wars”.
[4] Air Force Association, Air Force Magazine, “Duel of Doctrines”, December 1998, p. 31
[5] AFDD 1, *Air Force Basic Doctrine,* 1997, p. 23-26
[6] Personal meetings as the 93 ACW Wing Tactics Officer, May 1996-Jul 1998
[7] Ibid
[8] Ibid
[9] Umstead, Robert, Capt, USAF, *B-52/Joint STARS XINT Operations*, Summer 1998

Chapter 5

Conclusions and Recommendations

> *Every doctrine, though subject to peculiar characteristics to which it refers, must take into account the actual conditions at the time…and how to conduct war against the most probable enemy.*
>
> —Giulio Douhet

Hopefully, the question about readiness for dynamic targeting is still unanswered, which may force the combat air forces to take a serious look at their preparations, training and procedures for dynamic targeting and halt phase employment. The purpose of this article was to highlight the need for dynamic targeting considerations, demonstrate the amount of coordination and training required to accomplish this mission, highlight some of the forces available to support dynamic targeting, then look at the training required in this new, but old mission. When looking at past history and current trends, airpower will need the ability to prosecute dynamic threats to help shape the theater battlespace and protect friendly forces. Although some of services are beginning to prepare concepts of operation (CONOPS) for dynamic targeting, many of the air assets have never practiced or trained for this mission of the "unknown". Also, theater planners and aircrews must ensure plans for dynamic targeting look for "all" the possible threats, not just the newest threat of Theater Ballistic Missiles (TBMs). Airpower has the ability to dramatically influence the theater battlespace, if given the proper mission and targets. However, with the current plans for targeting, airpower is still in the reactionary stage, instead of being proactive and planning for this mission. Thus, to conquer the unknown threat there really needs

to become a dynamic targeting mission where forces are packaged and prepared to truly influence the battlespace. Airpower alone may not be able to win wars, but it can shape the battlespace and spare needless casualties by targeting threatening forces before they become a factor. When considering airpower employment, the forces must look at the entire theater battlespace, not just fixed areas on land, sea or in the air. Today's airmen have the weapons technology and knowledge to support the U.S. National Military Strategy to shape the battlespace by responding to dynamic threats and preparing for tomorrow's conflict of the "unknown", so long as this becomes part of airpower employment preparation.

Recommendations

To support new visions on airpower employment, airmen must plan for dynamic targeting, ensure dynamic targeting is in the theater battle plan, and ensure assets are allocated for this critical mission. Also, mission-type-orders must reach the tactical level of employment (aircrews), so execution can be kept decentralized and most important, the air assets are trained and ready for this mission.

Theater Plan

The key ingredient to planning for dynamic targeting lies in the JFACCs plan for employment of airpower. Although some theaters are beginning to plan for countering TBMs, very few plans have missions allocated to shaping the entire battlespace through dynamic targeting (TCT). Especially, with the USAF moving towards an AEF, planners must have insight as to how to counter those dynamic targets before they become a threat. Part of this planning involves the allocation and prioritization of those scarce air resources. However, to truly shape the environment, these forces must be ready and available from day one, not when the threat masses and influences the battlespace. Therefore, every AEF contingency plan and

theater CONOPS must allocate missions for dynamic targeting, whether it's called TCT CAP, divert, alert, or better yet, airborne on-call interdiction (XINT) missions.

Force Packaging

Planners and aircrews should consider packaging forces, so assets are allocated to airborne alert interdiction (XINT) missions, with special emphasis on dynamic targeting to shape the battlespace. When looking at employment plans for an AEF, or even supporting JV2010's concept of Precision Engagement, our forces must have plans to accurately target mobile enemy forces with the objective of delaying and disrupting their movement.[1] Utilizing the XINT mission, planners and aircrews should consider using a wide variety of air assets who can carry large and varying loads of munitions. Specifically, assets such as the B-1B, B-52, and F-15E all have the loiter time to stay on patrol, while still carrying large loads of precision and cluster munitions to destroy mobile forces. Also, the prioritization of targeting will enable the ISR assets to focus attention towards those dynamic targets, while still focusing on the main theater effort. While these assets are just a few of the options, it allows planners to have only one or two assets allocated to XINT, while the other forces continue theater-wide airpower employment. However, plans must also ensure the appropriate forces are available to negate the threat enroute to the target area. Packages must have air-to-air and SEAD assets available to escort high threat dynamic targeting missions. Of course, the key to effective airpower employment, is ensuring the aircrews understand the battlespace scheme of maneuver.

Mission Type Orders (MTO)

To effectively understand the battlespace scheme of maneuver, aircrews must receive mission-type-orders (MTO) at the tactical level. The best example of MTO lies in the World War I and II German military's use of *Auftragstaktik*, which described a method of command

and control that relied on general guidance from above combined with low-level initiative.[2] This entailed a philosophy based on a clear statement of the senior commander's objectives and the assignment of broadly stated tasks to subordinate commanders in order to accomplish the objectives.[3] However, MTO as defined by the Joint Chiefs of Staff, is "an order issued to a lower unit that includes the accomplishment of the total mission assigned to the higher headquarters, or one that assigns a broad mission, without specifying how it is to be accomplished".[4] Also, current joint interdiction doctrine states that, "the most important aspect in planning interdiction operations is the effect desired".[5] Another example in the current joint interdiction doctrine states, "the land or naval force commander can determine specific targets for joint interdiction, or most preferably, give the supporting commanders mission-type instructions in order to provide the other components as much leeway as possible".[6] Lastly, the idea of MTO is found in another statement from current joint interdiction doctrine saying, "forwarding desired effects rather than strict target nominations gives those responsible for conducting joint interdiction, maximum flexibility to exploit their capabilities".[7] Even in the 1930's, the Air Corps Tactical School taught a 20-hour course on drafting effective combat orders, including mission-type orders.[8] Each of these examples clearly illustrate the intent of MTOs, yet this information needs to reach the tactical level of war, or the actual aircrews employing airpower. This will ensure our aircrews can truly shape the battlespace by responding to real-time situations (dynamic) and influence the planned scheme of operation. An example could be a package of interdiction assets enroute to bomb a C2 node, yet they receive word from JSTARS and AWACS about large enemy convoy's moving towards the country borders. What do they do? If the package and the JSTARS received MTOs on the battlespace plan, they would know the priority is "halting" enemy forces before they can position themselves in threatening

situations, so they divert interdiction assets and dynamically target the enemy forces before they become a threat.

Decentralized Control

Part of the use of MTOs also involves the decentralization of control, especially when dynamically targeting threats. Although the use of AOC's and the JFACCs centralized control of air assets is a key tenet to airpower employment, those forces must also have the ability to dynamically respond to time critical threats. Decentralized control is something better facilitated by the air assets airborne and "on-scene" with the present situation. With control delegated down to the mission commanders and battle management assets, they can then control their area of responsibility and have the authority to make on-the-spot decisions affecting their Area of Responsibility (AOR) battle plans. Especially, with assets such as, AWACS, JSTARS and ABCCC, these battle managers can respond to those dynamic targets and allocate forces accordingly in real-time. Currently, the CONOPS for TCT employment supports centralized control, yet it may not support effective real-time targeting.[9] To support real-time targeting affecting the battlespace, mission commanders and battle management platforms must have the ability to redirect forces to meet the threat. Much of the coordination via communications and data links to the AOC, plus searching for assets to divert, slows the process for meeting real-time threats. Therefore, the key part of decentralizing the control, is the authority for those on-scene forces to meet current threats, without excessive coordination with planners and staff at an AOC. Also, this is easier to implement, once MTOs are delegated down to the tactical level where forces understand the overall battlespace scheme of operation.

Training and Exercises

Of course, air planners and aircrews can have all these plans to support dynamic targeting, but they also need effective training and exercises to develop tactics, techniques and procedures (TTP). As mentioned in an earlier chapter, the current training requirements and exercise opportunities to work dynamic targeting, or even "halt phase" operations, is very limited to non-existent. Each of the services and major commands must begin to incorporate dynamic targeting and "halt phase" operations into daily, monthly and yearly training. Specifically, the new AEF battle plan calls for those forces to train together before a deployment, so dynamic targeting operations would fit perfectly into a "work-up cycle".[10] This would allow not only the attack assets to practice this "unknown" mission, but also involve those air-to-air, SEAD and ISR assets supporting the targeting of a time-critical threat. In this "work-up cycle", all of the assets involved in an AEF, or contingency operation, could work on perfecting TTP for this dynamic mission. However, this training should also be accomplished at the individual unit level with assets such as the B-1B, B-2, B-52, AC-130, AH-64, AH-1, F/A-18, F-16, F-15E, A-10, F-14, AV-8, JSTARS, ABCCC, AWACS, RC-135 Rivet Joint, and UAV's. Although this is just a few of the type of assets to train in dynamic targeting, it represents those assets most likely to support dynamic targeting operations. Joint and individual service exercises must also ensure dynamic targeting is performed against large and small moving threats, which could simulate forces massing for attacks, mobile SAM's, TBMs and even small convoy's of C2 vehicles. The key consideration is finding moving assets, airspace and developing a scenario to replicate the current and expected future threats. These "movers" could be contracted to civilians, or the services could join for joint operations where U.S. land forces operate in small and large groups. Any exercise or training opportunity will dramatically increase the success of a dynamic

targeting mission. Realistic training, like we will fight in the future, is crucial to effective airpower employment.

This paper has attempted to highlight the various considerations to effective airpower employment against dynamic targets, while also proposing future employment enhancements. With airpower's truly global effect, the joint services, planners and aircrews must plan for this dynamic mission of "halting" aggression before it becomes a detriment future operations.

Notes

[1] Joint Chiefs of Staff (JCS), *Joint Vision 2010*, 1998, p. 21
[2] Col Trevor N. Dupuy, A Genius For War, 1984, p. 116
[3] Ibid, p. 116
[4] Joint Publication 1-02, *Department of Defense Dictionary of Military and Associated Terms*, 1989
[5] Joint Publication, 3-03, *Joint Interdiction Operations*, 1995, p. I-4
[6] Ibid, p. II-6
[7] Ibid, p. II-13
[8] Air Corps Tactical School, Combat Orders Course, 1939
[9] ACC/DRAW, *Combat Air Forces CONOPS for Command and Control Against Time Critical Targets*, 1997, p. 25-27
[10] Air Force Association, Air Force Magazine, "The Long Reach of On-Call Airpower", December 1998, p. 22

Appendix A

TAGS Interface

Air Operations Center (AOC) - The senior element of the Theater Air Control System (TACS) that is task-organized by the commander to fulfill requirements driven by the nature of the JFC's campaign, to exercise OPCON of forces, and to plan and execute the JFC's assigned missions and objectives. Specific functions include: developing operational campaign plans, develop specific targets, apportion resources, allocate sorties, conduct intelligence functions, publish the Air Tasking Order (ATO), direct and control ATO execution, evaluate mission results, set airspace control procedures, and maintain liaison with the other components. The AOC will retain centralized control to include moving C2 assets and shooters to support dynamic targeting.11

Airborne Warning and Control System (AWACS) - AWACS provides surveillance, battle management and aircraft control throughout the area of operation. It can operate in a limited role as an extension of the AOC to facilitate rapid battle management decisions affecting dynamic targeting. AWACS will be the "resource provider" to attacks against TCTs as it will most likely have radar and radio contact with attack assets moving throughout the airspace. AWACS can then support the tasking of attackers and/or conduct handoffs to JSTARS or ABCCC for immediate attacks against TCTs.12

Joint Surveillance Target Attack Radar System (JSTARS) - JSTARS provides real-time air-to-ground surveillance, battle management and attack control. This capability can be used for situational awareness on TCTs and real-time targeting support. JSTARS will coordinate surface and airborne weapons during attack operations because of its near real time ground situation display, joint Air Force/Army aircrew, and connectivity to the AOC. JSTARS will provide target attack information directly to attackers through datalink and/or radio contact.13

Airborne Battlefield Command and Control Center (ABCCC) - A specially modified C-130 with a limited capacity to manage tactical air-to-ground operations. Normally, operates as an extension of the AOC via delegated authority to divert aircraft to fleeting targets, serve as on-scene coordinator, or execute special missions. ABCCC can serve as an interim or substitute airborne ASOC for ground units. ABCCC has the staff, communications and data necessary to coordinate the employment of assets against dynamic targets. They will be able to identify specific attack assets with the proper weapons to handoff to JSTARS or AWACS.14

Air Support Operations Center (ASOC) - The ASOC is responsible for directing and controlling on-call CAS and air reconnaissance assets in support of the Army's ground forces. Normally located with an Army Corps, the ASOC provides fast reaction to immediate requests for Army forces for air support. The ASOC has the staff, communications and data necessary to

coordinate the employment of assets against dynamic targets. They will be able to identify specific attack assets with the proper weapons to handoff to JSTARS or AWACS.15

Tactical Air Control Party (TACP) - TACPs support the Army maneuver headquarters from corps through battalion by providing Air Force Air Liaison Officers (ALOs) to directly interact with supported land maneuver units. Their function is to assist Army planners in the preparation and synchronization of air support. They also have the added responsibility of providing terminal attack control to CAS aircraft.16

Forward Air Controller (FAC) - The FAC can either be on the ground or in the air (FAC-A). The FAC conducts reconnaissance and surveillance to provide terminal attack control of the air and artillery missions.17

Army Fire Support Element (FSE) - The primary function of the FSE is to advise the senior commander's on apportionment, allocation, distribution, and employment of available fire support assets, including air support, planning, synchronizing, and executing the use of these assets.18

Army Battlefield Coordination Element (BCE) - The primary Army contact for deep operations to the AOC. The basic functions of the BCE is to relay and interpret requests for air support, coordinate changes in the ATO, and validate force nominated targets prior to attack.19

Marine Fire Support Coordination Center (FSCC) - This is the central location where all forms of fire support to Marine operations are centralized. Specifically, they conduct targeting functions, disseminate information throughout the MAGTF, task elements, resolve fire support conflicts, request and coordinate fire support from external agencies.20

Marine Ground Combat Element (GCE) - The GCE supports critical fire support missions and provides information on friendly units, airspace, and enemy threats.21

Glossary

ABCCC	Airborne Battlefield Command and Control Center
AEF	Air Expeditionary Force
AOC	Air Operations Center
ASOC	Air Support Operations Center
ATACMS	Army Tactical Missile System
ATO	Air Tasking Order
AWACS	Airborne Warning and Control System
BAT	Brilliant Anti-tank Weapon
BCD	Battlefield Coordination Detachment (Army)
C2	Command and Control
CAF	Combat Air Forces
CAS	Close Air Support
CC&D	Camouflage, Concealment and Deception
CFL	Coordinated Fire Line
DASC	Direct Air Support Center (Marines)
FAC	Forward Air Controller
FFA	Free Fire Area
FSCL	Fire Support Coordination Line
FSCM	Fire Support Coordination Measures
GCE	Ground Combat Element (Marines)
GPS	Global Positioning System
IPB	Intelligence Preparation of the Battlespace
ISR	Intelligence. Surveillance and Reconnaissance
JDAM	Joint Direct Attack Munition
JFACC	Joint Force Air Component Commander
JFC	Joint Force Commander
JFLCC	Joint Force Land Component Commander
JSOW	Joint Standoff Weapon

JSTARS	Joint Surveillance Target Attack Radar System
MLRS	Multiple Launch Rocket System
SAM	Surface to Air Missile
SEAD	Suppression of Enemy Air Defense
SFW	Sensor Fused Weapon
SOF	Special Operations Forces
TACP	Tactical Air Control Party
TAGS	Theater Air Ground System
TBM	Theater Ballistic Missiles
TCT	Time Critical Target
TMD	Theater Missile Defense
UAV	Unmanned Aerial Vehicle
UCAV	Uninhabited Combat Aerial Vehicle
WCMD	Wind Corrected Munitions Dispenser
WMD	Weapons of Mass Destruction
XINT	Airborne On-Call Interdiction Mission

Bibliography

1st Lt C. Mck. Robinson, Air Service Tactical School, "Bombardment", 1924-1925, Air Force Historical Agency, Maxwell Air Force Base, Al

ACC/DRAW, *Combat Air Forces CONOPS for Command and Control Against Time Critical Targets*, 1997

AFDD 1, *Air Force Basic Doctrine*, 1997

AFDD 2, *Organization and Employment of Aerospace Power*, 1998

Air Corps Tactical School, Combat Orders Course, 1939

Air Force Association, Air Force Magazine, "The Long Reach of On-Call Airpower", December 1998

Air Force Association, Air Force Magazine, "Duel of Doctrines", December 1998

Air Land Sea Application Center (ALSA), ACCP 50-54, *The Theater Air-Ground System (TAGS)*, 1994

Air Land Sea Application Center (ALSA), AFJPAM 10-225, *Targeting*, 1997

Bingham, Price T., *Joint Mobile Target Engagement*, (Airpower Journal, 1997)

Bingham, Price T., *Rapidly Stopping an Invasion*, Draft Article

Bingham, Price T., *Proposed Joint STARS CONOPS for Rapid Halt Employment*, Draft Article

Bingham, Price T., *The Air Power Revolution*, Draft Article

Bingham, Price T., *Theater Warfare, Movement, and Airpower*, Airpower Journal, Spring 1998

Bradford, Greg, Capt, USAF, *Airborne Tasking and the F-15E Strike Eagle*, USAF Weapons School Paper, 1997

Col Trevor N. Dupuy, A Genius For War, 1984

Department of Defense, *Conduct of the Persian Gulf War: Final Report to Congress*, April 1992

Eduard, Mark, *Aerial Interdiction in Three Wars*, (Washington D.C., Center for Air Force History, 1994)

Egginton, Jack B.,Major, USAF, *Ground Maneuver and Interdiction*, (Air University Press, 1994)

Fischer, Michael E.,Major, USAF, *Mission-Type Orders in Joint Air Operations*, (Air University Press, May 1995)

Joint Chiefs of Staff (JCS), *Joint Vision 2010*, 1998

Joint Publication 1-02, *Department of Defense Dictionary of Military and Associated Terms*, 1989

Joint Publication 3-0, *Doctrine for Joint Operations*, 1995

Joint Publication, 3-03, *Joint Interdiction Operations*, 1995

Kipphut, Mark, Lt Col, USAF, *Theater Missile Defense*, Airpower Journal, Winter 1996

New, Terry, Lt Col, USAF, *Where to Draw the Line Between the Air and Land Battle*, Airpower Journal, Fall 1996

The National Defense Panel, "Assessment of the May 1997 Quadrennial Defense Review", memo to the Secretary of Defense dated 15 May 1997, printed in Inside the Army, May 19, 1997

USCENTAF, *Theater Missile Defense (TMD) Concept of Operations (CONOPS)*, Internal Look 1996

Umstead, Robert, Capt, USAF, *B-52/Joint STARS XINT Operations*, Summer 1998

William S. Cohen, Report of the Quadrennial Defense Review, US Department of Defense, May 1997, "Fighting and Winning Major Theater Wars".

DISTRIBUTION A:

Approved for public release; distribution is unlimited.

Air Command and Staff College
Maxwell AFB, Al 36112